Ontario

Apprenticeship
In-school Curriculum Standards

Tower Crane Operator
Branch 3

Level 2 and 3

339B

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Apprenticeship
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Introduction

This new curriculum standard for the Mobile & Tower Crane Operator trade is designed from the learning outcomes, which were developed from the industry-approved training standard.

The curriculum is organized into a common core for 339A, B and C, three additional levels for Mobile Crane Operator Branch 339A and two additional levels for Tower Crane Operator 339B. Each includes reportable subjects containing learning outcomes to reflect the units of the training standard. Depending on the trade code, specific curriculum standards are to be used. Mobile Crane 339C requires the use of the Level 1 Common Core only. Mobile Crane 339A requires the use of Level 1, Common Core, and the Mobile Crane 339A curriculum combining Levels 2, 3 and 4. For Tower Crane 339B the Level 1, Common Core and the Tower Crane Level 2 and 3, combined curriculum is to be used. The hour chart indicates how the curriculum can be delivered in the current block-release format and summarizes the hours of training for each reportable by level.

The reportable subjects are cross-referenced to the training standard for ease of comparison.

Each reportable subject and learning outcome identifies a recommended number of training hours. This hour allotment is broken into hours for instruction in theory and practical application. The division of the curriculum into reportable subjects follows a natural progression of learning through the training program. This structure will allow training centres and apprentices flexibility in program delivery while still observing the importance of sequencing learning in a logical progression.

The curriculum is framed by and includes specific references to terminal performance objectives in the Apprenticeship Training Standards for the Mobile & Tower Crane Operator trade. However, the curriculum identifies only the learning that takes place off the job, in a training environment. The in-school program focuses primarily on the theoretical knowledge required to master the performance objectives of the Training Standards. Employers are expected to extend the apprentice's knowledge and skills through appropriate practical training on the work site. Regular evaluations of an apprentice's knowledge and skills are conducted throughout training to ensure that all apprentices have achieved the learning outcomes identified in the curriculum standard. The balance between theoretical and practical evaluation is identified for each unit of learning outcomes.

Implementation date:
January 1, 2008

Program Summary of Reportable Subjects

Tower Crane Operator - Branch 3 (339B) - Level 2

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
S0321	Lift planning – Hammerhead tower crane	12	4	8
S0322	Hammerhead tower crane operations	28	5	23
S0323	Lift planning – Luffing jib tower crane	12	4	8
S0324	Luffing jib tower crane operations	28	5	23
	Total	**80**	**18**	**62**

Tower Crane Operator - Branch 3 (339B) - Level 3

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
S0325	Specialized hoisting operations	32	14	18
S0326	Climbing towers	8	6	2
	Total	**40**	**20**	**20**

Tower Crane Operator - Branch 3 (339B) - Level 2

Number:	S0321
Title:	**Lift planning – Hammerhead tower crane**
Duration:	12 Total Hours
	Theory: 4 hours Practical: 8 hours
Prerequisites:	Level 1 – Common Core
Co-requisites:	N/A

1.1 Site assessment

2 Total Hours Theory: 1 hour Practical: 1 hour

1.2 Crane lifting capacity

3 Total Hours Theory: 1 hour Practical: 2 hours

1.3 Load/capacity charts

7 Total Hours Theory: 2 hours Practical: 5 hours

Evaluation structure:
Knowledge and the application of safe working practices will be monitored throughout the training and considered during practical evaluations.

Learning reference materials:
Manufacturers' manuals

Equipment requirements:
Hammerhead tower crane

1.1 - Site assessment

Cross Reference to Training Standards:

Branch 3 5343.2, 5340.9

Duration: 2 Total Hours Theory: 1 hour Practical: 1 hour

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to inspect a work site to ensure a safe and efficient operation, in accordance with a pre-lift plan.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.1.1 Establish the location of the lift, giving consideration to:
- accessibility of the site
- initial location of the load
- load placement
- obstructions in the area
- location of electrical power lines
- known underground hazards
- weather conditions
- other potential hazards

1.1.2 Determine the requirement for communications, signaller, flag persons, barriers, grounding and bonding.

1.2 - Crane lifting capacity

Cross Reference to Training Standards:

Branch 3 5342.5, 5342.6, 5343.1

Duration: 3 Total Hours Theory: 1 hour Practical: 2 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to determine that the lifting capacity of a hammerhead crane is sufficient when considering the configuration and attachments required for a given lift.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.2.1 Establish optimum hook radius required to lift a given load.

1.3 - Load/capacity charts

Cross Reference to Training Standards:

Branch 3 5342.1, 5342.2

Duration: 7 Total Hours Theory: 2 hours Practical: 5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use a hammerhead tower crane load/capacity chart to determine the gross capacity for hoisting applications.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.3.1 State the elements of a load/capacity chart, including:
- jib length
- attachments
- hook radius
- weight of the load
- weight of the rigging

1.3.2 Locate the specific information from a load/capacity chart.

1.3.3 Determine, given the load/capacity technical data and lift information, whether the lift can be done within manufacturers' specifications.

Number:	S0322
Title:	Hammerhead tower crane operations
Duration:	28 Total Hours
	Theory: 5 hours Practical: 23 hours
Prerequisites:	Level 1 – Common Core
Co-requisites:	N/A

2.1 Interpret operator manuals
2 Total Hours Theory: 0.5 hour Practical: 1.5 hours

2.2 Pre-operational inspections
3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

2.3 Pre-operational setup
3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

2.4 Hoisting techniques
8 Total Hours Theory: 1 hour Practical: 7 hours

2.5 Operate hammerhead tower crane
10 Total Hours Theory: 2 hours Practical: 8 hours

2.6 Leave crane unattended
2 Total Hours Theory: 0.5 hour Practical: 1.5 hours

Evaluation structure:
Knowledge and the application of safe working practices will be monitored throughout the training and considered during practical evaluations.

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Learning reference materials:
Occupational Health and Safety Act (OHSA),
Manufacturers' manuals,
Training Delivery Agent (TDA) policies

Equipment requirements:
Hammerhead tower crane

2.1 - Interpret operator manuals

Cross Reference to Training Standards:

Branch 3	5341.1, 5344.1, 5345.1, 5346.1, 5347.1		
Duration:	2 Total Hours	Theory: 0.5 hour	Practical: 1.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to apply inspection and operating information from the manufacturers' operator manuals of a given hammerhead tower crane.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.1.1 Locate specific information in a manufacturers' manual related to the inspection, setup and operation of a given crane.

2.1.2 Interpret specific information in a manufacturers' manual related to the inspection, setup and operation of a given crane.

2.2 - Pre-operational inspections

Cross Reference to Training Standards:

Branch 3	5341.2, 5341.3, 5341.4, 5341.5, 5341.8, 5341.9, 5341.10, 5341.11, 5344.3, 5344.5, 5344.6, 5344.7, 5344.8, 5344.9, 5344.10, 5344.11, 5344.12, 5345.2, 5345.3, 5346.7, 5346.8, 5347.5
Duration:	3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to safely and efficiently perform a pre-operational inspection of a hammerhead crane, in accordance with manufacturers' recommendations, and the Occupational Health and Safety Act (OHSA).

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.2.1 State the recommended sequence of inspection.

2.2.2 Verify that operator aids for the crane are in place.

2.2.3 Confirm that all pertinent inspection and erection reports are completed and filed, according to OHSA.

2.2.4 Confirm that all safety and emergency devices are in place and operational.

2.2.5 Locate all controls and system gauges.

2.2.6 Perform a pre-operational inspection for a given crane, according to manufacturers' procedures.

2.2.7 Perform a function test on all systems.

2.2.8 Perform basic repairs and maintenance.

2.2.9 Report any defects or deficiencies to the supervisor.

2.2.10 Record any defects or deficiencies in the crane log book.

2.2.11 Record all repairs or maintenance in the appropriate crane log book.

2.3 - Pre-operational setup

Cross Reference to Training Standards:

Branch 3 5345.2, 5344.2

Duration: 3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to perform a pre-operational setup for a given hammerhead tower crane, in accordance with manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.3.1 State the setup procedure.

2.3.2 Identify overhead obstructions and underground hazards in the lift area.

2.3.3 Program or adjust safety devices according to manufacturers' recommendations.

2.4 - Hoisting techniques

Cross Reference to Training Standards:

Branch 3	5344.4, 5345.4, 5345.5, 5345.6, 5345.7, 5345.8, 5345.9, 5345.10, 5345.11, 5345.12, 5345.13, 5345.14, 5345.15, 5345.16, 5345.17, 5344.13

Duration: 8 Total Hours Theory: 1 hour Practical: 7 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use a hammerhead crane to perform lift operations in a safe and efficient manner, in accordance with manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.4.1 Operate a crane with and without a load by:
- travelling the trolley in and out
- slewing clockwise and counterclockwise
- hoisting up and down

2.4.2 Maintain control of the hook block throughout all functions.

2.4.3 Describe a pick-and-transfer procedure.

2.4.4 Perform a pick-and-transfer lift.

2.5 - Operate hammerhead tower crane

Cross Reference to Training Standards:

Branch 3	5344.3, 5344.4, 5344.5, 5344.6, 5344.7, 5344.8, 5344.9, 5344.10, 5344.11, 5344.12, 5344.13

Duration: 10 Total Hours Theory: 2 hours Practical: 8 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use a hammerhead tower crane to lift a given load, in accordance with the lift instructions and the manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.5.1 Assess the lift site.

2.5.2 Plan the lift.

2.5.3 Perform a pre-operational inspection of the crane.

2.5.4 Perform a pre-operational setup of the crane.

2.5.5 Transfer the load.

2.5.6 Monitor equipment performance.

2.5.7 Troubleshoot equipment problems.

2.5.8 Move the load to the destination.

2.5.9 Perform a post-operational procedure.

2.6 - Leave crane unattended

Cross Reference to Training Standards:

Branch 3 5340.11, 5340.12

Duration: 2 Total Hours Theory: 0.5 hours Practical: 1.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to prepare a hammerhead tower crane to be left unattended for short or long periods of time, in accordance with manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.6.1 State the procedure for leaving a crane unattended for short periods of time (e.g., lunch breaks).

2.6.2 State the procedure for leaving a crane unattended for long periods of time (e.g., overnight, weekends).

2.6.3 Perform shutdown procedure:
- shut down and secure equipment
- perform housekeeping tasks
- conduct post-operational inspection

Number:	S0323
Title:	**Lift planning – Luffing jib tower crane**
Duration:	12 Total Hours
	Theory: 4 hours Practical: 8 hours
Prerequisites:	Level 1 – Common Core
Co-requisites:	N/A

3.1 Site assessment

2 Total Hours Theory: 1 hour Practical: 1 hours

3.2 Crane lifting capacity

3 Total Hours Theory: 1 hour Practical: 2 hours

3.3 Load/ capacity charts

7 Total Hours Theory: 2 hours Practical: 5 hours

Evaluation structure:
Knowledge and the application of safe working practices will be monitored throughout the training and considered during practical evaluations.

Learning reference materials:
Manufacturers' manuals

Equipment requirements:
Luffing jib tower crane

3.1 - Site assessment

Cross Reference to Training Standards:

Branch 3 5340.9, 5343.2

Duration: 2 Total Hours Theory: 1 hour Practical: 1 hour

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to inspect a work site to ensure a safe and efficient luffing jib tower crane operation, in accordance with a pre-lift plan.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

3.1.1 Establish the location of the lift by giving consideration to:
- accessibility of the site
- initial location of the load
- load placement
- obstructions in the area
- location of electrical power lines
- known underground hazards
- weather conditions
- other potential hazards

3.1.2 Determine the requirement for communications, signaller, flag persons, barriers, grounding and bonding.

3.2 - Crane lifting capacity

Cross Reference to Training Stan ards:

Branch 3 5342.5, 5342.6 5343.1

Duration: 3 Total Hours Theory: 1 hour Practical: 2 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to determine that the lifting capacity of a luffing jib tower crane is sufficient when considering the configuration and attachments required for a given li

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

3.2.1 Establish optimum hook radius required to lift a given load.

3.3 - Load/capacity charts

Cross Reference to Training Standards:

Branch 3	5342.1, 5342.2		
Duration:	7 Total Hours	Theory: 2 hours	Practical: 5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use a luffing jib tower crane load/capacity chart to determine the gross capacity for hoisting applications.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

3.3.1 State the elements of a load/capacity chart, including:
- jib length
- attachments
- hook radius
- weight of the load
- weight of the rigging

3.3.2 Locate the specific information from a load/capacity chart.

3.3.3 Determine, given the load/capacity technical data and lift information, whether the lift can be done within manufacturers' specifications.

Number:	S0324
Title:	**Luffing jib tower crane operations**
Duration:	28 Total Hours
	Theory: 5 hours Practical: 23 hours
Prerequisites:	Level 1 – Common Core
Co-requisites:	N/A

4.1 Interpret operator manuals
2 Total Hours Theory: 0.5 hour Practical: 1.5 hours

4.2 Pre-operational inspections
3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

4.3 Pre-operational setup
3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

4.4 Hoisting techniques
8 Total Hours Theory: 1 hour Practical: 7 hours

4.5 Operate luffing jib tower cranes
10 Total Hours Theory: 2 hours Practical: 8 hours

4.6 Leave crane unattended
2 Total Hours Theory: 0.5 hours Practical: 1.5 hours

Evaluation structure:
Knowledge and the application of safe working practices will be monitored throughout the training and considered during practical evaluations.

Learning reference materials:
Occupational Health and Safety Act (OHSA)
Manufacturers' manuals
Training Delivery Agent (TDA) policies

Equipment requirements:
Luffing jib tower crane

4.1 - Interpret operator manuals

Cross Reference to Training Standards:

Branch 3 5341.1, 5344.1, 5345.1, 5346.1, 5347.1

Duration: 2 Total Hours Theory: 0.5 hour Practical: 1.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to apply inspection and operating information from manufacturers' operator manuals for a given luffing jib tower crane.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

4.1.1 Locate specific information in a manufacturers' manual related to the inspection, setup and operation of a given crane.

4.1.2 Interpret specific information in a manufacturers' manual related to the inspection, setup and operation of a given crane.

4.2 - Pre-operational inspections

Cross Reference to Training Standards:

Branch 3	5341.2, 5341.3, 5341.4, 5341.5, 5341.8, 5341.9, 5341.10, 5341.11, 5344.3, 5344.5, 5344.6, 5344.7, 5344.8, 5344.9, 5344.10, 5344.11, 5344.12, 5345.2, 5345.3, 5346.7, 5346.8, 5347.5
Duration:	3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to safely and efficiently perform a pre-operational inspection of a luffing jib tower crane, in accordance with manufacturers' recommendations, Occupational Health and Safety Act (OHSA).

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

4.2.1 State the recommended sequence of inspection.

4.2.2 Verify that the operator aids for the crane are in place.

4.2.3 Confirm that all pertinent inspection and erection reports are completed and filed, according to OHSA.

4.2.4 Confirm that all safety and emergency devices are in place and operational.

4.2.5 Locate all controls and system gauges.

4.2.6 Perform a pre-operational inspection for a given crane according to manufacturer procedures.

4.2.7 Perform a function test on all systems.

4.2.8 Perform basic repairs and maintenance.

4.2.9 Report any defects or deficiencies to the supervisor.

4.2.10 Record any defects or deficiencies in the crane log book.

4.2.11 Record all repairs or maintenance in the appropriate crane log book.

4.3 - Pre-operational setup

Cross Reference to Training Standards:

Branch 3 5345.2, 5344.2

Duration: 3 Total Hours Theory: 0.5 hour Practical: 2.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to perform a pre-operational setup for a given luffing jib tower crane, in accordance with the manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

4.3.1 State the setup procedure.

4.3.2 Identify overhead obstructions and underground hazards in the lift area.

4.3.3 Program or adjust safety devices, according to manufacturers' recommendations.

4.4 - Hoisting techniques

Cross Reference to Training Standards:

Branch 3	5344.4, 5344.13, 5345.4, 5345.5, 5345.6, 5345.7, 5345.8, 5345.9, 5345.10, 5345.11, 5345.12, 5345.13, 5345.14, 5345.15, 5345.16, 5345.17

Duration: 8 Total Hours Theory: 1 hour Practical: 7 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use a luffing jib tower crane to perform lift operations in a safe and efficient manner, in accordance with manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

4.4.1 Operate a crane with and without a load by:
- travelling the trolley in and out
- slewing clockwise and counter clockwise
- hoisting up and down

4.4.2 Maintain control of the hook block in a safe manner through all functions.

4.4.3 Describe a pick-and-transfer procedure.

4.4.4 Perform a pick-and-transfer lift.

4.5 - Operate luffing jib tower crane

Cross Reference to Training Standards:

Branch 3	5345.3, 5345.4, 5345.5, 5345.6, 5345.7, 5345.8, 5345.9, 5345.10, 5345.11, 5345.12, 5345.13, 5345.14, 5345.15, 5345.16, 5345.17

Duration: 10 Total Hours Theory: 2 hours Practical: 8 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use a luffing jib tower crane to lift a given load, in accordance with the lift instructions and the manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

4.5.1 Assess the lift site.

4.5.2 Plan the lift.

4.5.3 Perform a pre-operational inspection of the crane.

4.5.4 Perform a pre-operational setup of the crane.

4.5.5 Transfer the load.

4.5.6 Monitor equipment performance.

4.5.7 Troubleshoot equipment problems.

4.5.8 Move the load to the destination.

4.5.9 Perform a post-operational procedure.

4.6 - Leave crane unattended

Cross Reference to Training Standards:

Branch 3 5340.11, 5340.12

Duration: 2 Total Hours Theory: 0.5 hour Practical: 1.5 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to prepare a luffing jib tower crane to be left unattended for short or long periods of time, in accordance with manufacturers' recommendations.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

4.6.1 State the procedure for leaving a crane unattended for short periods of time (e.g., lunch breaks).

4.6.2 State the procedure for leaving a crane unattended for long periods of time (e.g., overnight, weekends).

4.6.3 Perform shutdown procedure:
- shut down and secure equipment
- perform housekeeping tasks
- conduct post-operational inspection

Tower Crane Operator - Branch 3 (339B) - Level 3-

Number:	S0325
Title:	**Specialized hoisting operations**
Duration:	32 Total Hours Theory: 14 hours Practical: 18 hours
Prerequisites:	Level 1 – Common Core, and Tower Crane Operator Branch 3 (339B) - Level 2
Co-requisites:	N/A

1.1 Elevated work platform
4 Total Hours Theory: 2 hours Practical: 2 hours

1.2 Engineered lift
4 Total Hours Theory: 2 hours Practical: 2 hours

1.3 Precision lift
4 Total Hours Theory: 2 hours Practical: 2 hours

1.4 Multiple crane lift
20 Total Hours Theory: 8 hours Practical: 12 hours

Evaluation structure:
Knowledge of all aspects of tower crane operations is evaluated by theory testing. The application of safe working practices will be monitored throughout the training and considered during practical evaluations.

Learning reference materials:
Occupational Health and Safety Act (OHSA) and manufacturers' manuals.

Equipment requirements:
Hammerhead and/or luffing jib tower crane, plus a tower or mobile crane

1.1 - Elevated work platform

Cross Reference to Training Standards:

Branch 3 5342.8

Duration: 4 Total Hours Theory: 2 hours Practical: 2 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to use an elevated work platform in the safe and efficient performance of a lift, in accordance with the lift instructions, manufacturers' procedures and Occupational Health and Safety Act (OHSA).

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.1.1 Describe the procedure for a lift with an elevated work platform.
1.1.2 Assess the lift site.
1.1.3 Plan the lift.
1.1.4 Attach the elevated work platform.
1.1.5 Perform a pre-operational inspection of the crane.
1.1.6 Perform a pre-operational setup of the crane.
1.1.7 Hoist the elevated work platform.
1.1.8 Monitor equipment performance.
1.1.9 Troubleshoot equipment problems.
1.1.10 Move the platform to the destination.
1.1.11 Perform the post-operational procedure.

1.2 - Engineered lift

Cross Reference to Training Standards:

Branch 3 5342.8

Duration: 4 Total Hours Theory: 2 hours Practical: 2 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to perform an engineered lift in a safe and efficient manner, in accordance with the lift instructions, manufacturers' recommendations and Occupational Health and Safety Act (OHSA).

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.2.1 Describe the procedure for an engineered lift.
1.2.2 Assess the lift site.
1.2.3 Plan the lift.
1.2.4 Perform a pre-operational inspection of the crane.
1.2.5 Perform a pre-operational setup of the crane.
1.2.6 Perform the engineered lift.
1.2.7 Monitor equipment performance.
1.2.8 Troubleshoot equipment problems.
1.2.9 Move the load to the destination.
1.2.10 Perform the post-operational procedure.

1.3 - Precision lift

Cross Reference to Training Standards:

Branch 3 5342.8

Duration: 4 Total Hours Theory: 2 hours Practical: 2 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to perform a precision lift in a safe and efficient manner, in accordance with the lift instructions, manufacturers' procedures and Occupational Health and Safety Act (OHSA).

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.3.1 Describe the procedure for a precision lift.

1.3.2 Assess the lift site.

1.3.3 Plan the lift.

1.3.4 Perform a pre-operational inspection of the crane.

1.3.5 Perform a pre-operational setup of the crane.

1.3.6 Perform the lift.

1.3.7 Monitor equipment performance.

1.3.8 Troubleshoot equipment problems.

1.3.9 Move the heavy load to the destination.

1.3.10 Perform the post-operational procedure.

1.4 - Multiple crane lift

Cross Reference to Training Standards:

Branch 3 5342.8

Duration: 20 Total Hours Theory: 8 hours Practical: 12 hours

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to perform a multiple crane lift in a safe and efficient manner, in accordance with the lift instructions, manufacturers' procedures and Occupational Health and Safety Act (OHSA).

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

1.4.1 Calculate the load on each crane during a multiple crane lift.

1.4.2 Describe the procedure for a multiple crane lift.

1.4.3 Assess the lift site.

1.4.4 Plan a variety of lifts, including:
- standing up a horizontal object
- laying down a vertical object
- lifting a slab

1.4.5 Perform a pre-operational inspection of the cranes.

1.4.6 Perform a pre-operational setup of the crane.

1.4.7 Perform the lift.

1.4.8 Monitor equipment performance.

1.4.9 Troubleshoot equipment problems.

1.4.10 Move the load to the destination.

1.4.11 Perform the post-operational procedure.

Number:	S0326
Title:	**Climbing towers**
Duration:	8 Total Hours
	Theory: 6 hours Practical: 2 hours
Prerequisites:	Level 1 – Common Core, and Tower Crane Operator - Branch 3 (339B) - Level 2
Co-requisites:	N/A

2.1 Climbing tower crane

4 Total Hours Theory: 3 hours Practical: 1 hour

2.2 Top climbing tower crane

4 Total Hours Theory: 3 hours Practical: 1 hour

Evaluation structure:
Knowledge is evaluated by theory testing.

Learning reference materials:
Occupational Health and Safety Act (OHSA) and manufacturers' manuals.

Equipment requirements:

2.1 - Climbing tower crane

Cross Reference to Training Standards:

Branch 3 5346.0

Duration: 4 Total Hours Theory: 3 hours Practical: 1 hour

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to describe the procedures to assemble and operate a climbing tower crane, in accordance with manufacturers' specifications.

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LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.1.1 Locate information in manufacturers' manuals.

2.1.2 Interpret information in manufacturers' manuals.

2.1.3 List the components a climbing tower crane.

2.1.4 Describe the assembly procedures for a climbing tower crane.

2.1.5 Describe the operation of a climbing tower crane.

2.1.6 List the function tests that are required prior to operation.

2.2 - Top climbing tower crane

Cross Reference to Training Standards:

Branch 3 5346.0

Duration: 4 Total Hours Theory: 3 hours Practical: 1 hour

GENERAL LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to describe the procedures to assemble and operate a top climbing tower crane, in accordance with manufacturers' specifications.

LEARNING OUTCOMES:

Upon successful completion, the apprentice is able to:

2.2.1 Locate information in manufacturers' manuals.

2.2.2 Interpret information in manufacturers' manuals.

2.2.3 List the components of a top climbing tower crane.

2.2.4 Describe the assembly procedures for a top climbing tower crane.

2.2.5 Describe the operation of a top climbing tower crane.

2.2.6 List the function tests that are required prior to operation.